

DNFSB/misc-074

John T. Conway, Chairman
A.J. Eggenberger, Vice Chairman
John W. Crawford, Jr.
Joseph J. DiNunno
Herbert John Cecil Kouts

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004
(202) 208-6400



April 28, 1995

The Honorable Hazel R. O'Leary
Secretary of Energy
Washington, D.C. 20585

Dear Secretary O'Leary:

In late 1994 the Defense Nuclear Facilities Safety Board (Board) initiated a series of discussions with the Department of Energy (DOE) and its nuclear weapons laboratories. These discussions were focused to explore the most effective means of managing the safety of research and development (R&D) activities while maintaining the flexibility needed to conduct R&D in support of national security objectives. A Board staff issue paper summarizing these discussions is enclosed.

When Congress established the Board in 1988, it recognized that defense nuclear facilities involve unique hazards due to the presence of radioactive materials, such as plutonium. Because of these hazards, a disciplined approach to facility operations is required to protect workers, the public, and the environment and to assure that an accident does not render a facility useless for national security-related activities. This is also true of the weapons laboratories' defense nuclear R&D facilities.

However, activities at R&D facilities differ from those at production facilities by being more varied in scope, less routine, and of shorter duration. Because of the uncertain risks associated with some experiments, integrated safety management systems for nuclear R&D facilities need to include both traditional nuclear facility safety management mechanisms and well-defined and rigorously-implemented experiment safety review systems. Although the weapons laboratories have implemented various R&D experiment control systems, safety management systems that are truly integrated are still in development.

In discussing the issues associated with the development of integrated safety management systems tailored to the operations at R&D facilities, problems with the current DOE requirements system were reported by the laboratories:

1. Some sets of requirements are highly prescriptive and, as such, appear to provide little latitude for facility-specific or activity-specific interpretation.

2. DOE reportedly does not have an effective system for reviewing and approving exceptions or "equivalencies," even when documented laboratory practices can be technically justified as meeting the safety objectives of the requirements. Key contributing factors to DOE's inability to approve "tailored" implementation proposals appear to be:
 - a. insufficient technically competent staff assigned to the task,
 - b. a lack of clear acceptance criteria, and
 - c. a reported widespread misperception within the DOE complex that the Board will view less-than-literal compliance with all safety-related requirements and guidelines as unacceptable.
3. The current DOE approach to safety audits, which are conducted for both line management and independent oversight purposes, is uncoordinated and inefficient. This results in multiple audits on overlapping topics with little time for corrective actions between similar audits.

In the Board's second recommendation (Recommendation 90-2), DOE was asked to identify the specific standards it considered applicable to the design, construction, operation, and decommissioning of its defense nuclear facilities. DOE's plan to implement Recommendation 90-2 includes a commitment to develop "Standards/Requirements Identification Documents," or S/RIDs, that are to *"contain the standards and requirements necessary to operate facilities or conduct activities with adequate protection of workers, the public, and the environment."* The S/RIDs are to be developed by the organizations implementing the requirements, such as the laboratories, and to be reviewed and approved by DOE. Revision 5 of the Implementation Plan for Recommendation 90-2 provides for both site-wide and facility-specific S/RIDs that are intended to identify applicable and appropriate health and safety requirements.

An integrated, facility-specific nuclear safety management system, tailored to the scope of the activities planned and the range of hazards associated with those activities, is needed for each major defense nuclear facility at a site [such as TA-55 (Los Alamos National Laboratory), Building 332 (Lawrence Livermore National Laboratory), the Defense Waste Processing Facility (Savannah River Site), Building 707 (Rocky Flats Environmental Technology Site), and weapons assembly and disassembly buildings (Pantex)]. To develop such a system, the applicability of site-wide requirements (found in the site-wide S/RIDs), as well as associated Order or rule implementation programs, needs to be assessed. These tailored safety management systems would therefore include facility-specific S/RIDs, but need not include all requirements in DOE Orders and standards if the excluded requirements are formally determined and documented not to be applicable or appropriate. However, facility-specific safety management systems may

include requirements and management prerogative mechanisms that were not identified in the site-wide S/RIDs, but which have been determined by the operating organization to be necessary to ensure adequate protection of the public, the worker, and the environment from the hazards associated with the facility or activity. In addition, a truly integrated safety management system would include management and self-assessment elements (i.e., policies, procedures, safety committees, etc.) that evaluate each specific activity proposed for a facility, to assure that the activity can be conducted safely within the analyzed and approved capabilities of the facility.

The weapons laboratories are at various stages of developing integrated safety management systems that, in effect, build on the intended concept of S/RIDs. The Board believes that the concepts of S/RIDs and integrated, tailored safety management systems, as discussed above, are mutually supportive. However, the reported difficulties on the part of DOE and the laboratories in processing exemptions or "equivalencies," suggest that adequate mechanisms and sufficient technically-competent DOE staff may not be currently in place to review and approve technical documents of this complexity. It should be noted, however, that the DOE safety rules promulgated to date contain explicit procedures for granting exemptions from specific requirements, in appropriate cases. Moreover, facility-specific S/RIDs were intended to only include those requirements in DOE Orders and other sources that are determined to be applicable and necessary to adequately protect public health and safety. Finally, contracts governing the laboratories provide mechanisms to prevent inapplicable or inappropriate safety requirements from being imposed. It is unclear, therefore, why these existing mechanisms are not sufficient, if they were to be exercised properly.

The Board recognizes the need to manage the safety of DOE's defense nuclear research and development operations in a manner that does not hamstring flexibility and the use of good science. The Board strongly believes that effective use of the S/RID process will accomplish this objective.

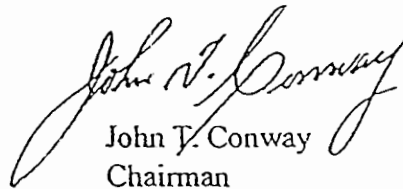
Therefore, in accordance with the issues identified in this letter, consistent with the intent of the Board's Recommendations 90-2 and 94-5, and pursuant to 42 U.S.C. § 2286b(d), the Board requests that DOE provide a report that addresses the following:

- The adequacy of the guidance given by DOE to the field to ensure that the integrated safety management systems under development at DOE's defense nuclear laboratories will contain and implement an appropriate set of safety requirements and adequate management structures that incorporate and are consistent with the intent of S/RIDs commitments.

- A description of how DOE plans to address the need for adequate technical talent, mechanisms, and acceptance criteria to review and expeditiously approve tailored integrated safety management systems at these laboratories, including appropriate disposition of proposed technically-justified equivalencies and exemptions.
- A summary of actions needed to coordinate DOE line management and independent oversight safety audits at the weapons laboratories.

The Board requests that the above report be submitted within 90 days of receiving this letter. If you need any further information in this connection, please let me know.

Sincerely,



John T. Conway
Chairman

c: The Honorable Thomas P. Grumbly
The Honorable Tara O'Toole
The Honorable Victor H. Reis
Mr. Mark Whitaker

Enclosure